

PIXIS-XO 100 CCD CAMERA

Direct Soft X-Ray Detection

KEY FEATURES

- 1340 x 100 format sensor for x-ray spectroscopy/imaging
- Sensitivity from ~1 eV to ~3 keV
- Large 20 μm pixels to maximize sensitivity
- ConFlat vacuum interface
- Compatible with 10^{-8} Torr vacuum
- Thermoelectric cooling down to $-90\text{ }^{\circ}\text{C}$ for low dark current
- Acquisition rates of up to 2 MHz
- Ultra-low-noise electronics
- Dual amplifiers with software-selectable gains
- Software selectable gains
- Kinetics mode for microsecond resolution

TYPICAL APPLICATIONS

- X-ray spectroscopy
- EUV lithography
- X-ray plasma diagnostics
- UHV spectroscopy

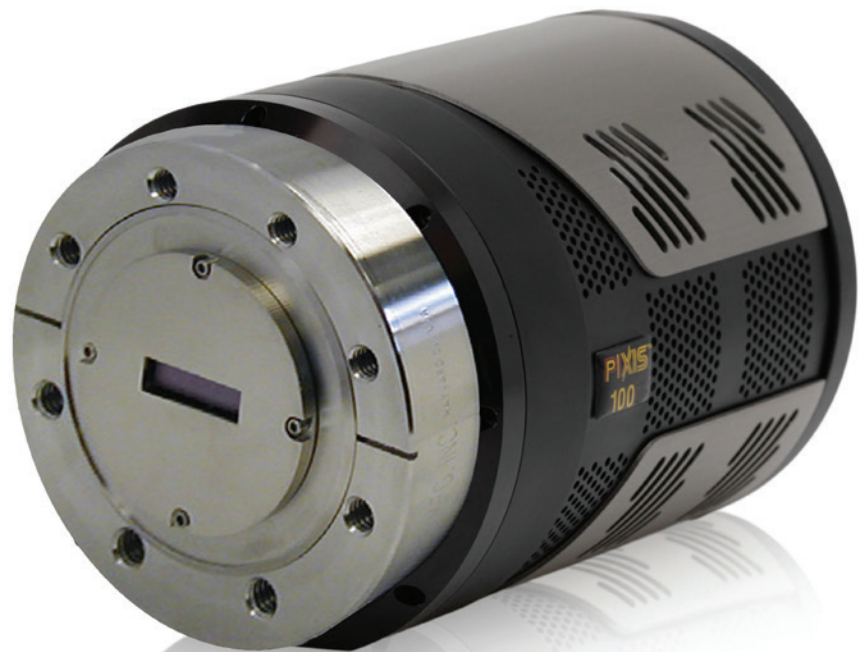
RELIABILITY

- One-year warranty
- Lifetime vacuum guarantee

High-Performance, Low-Noise X-Ray CCDs

The PIXIS-XO camera family are highly sensitive, back-illuminated CCDs without antireflective coatings, used for the direct detection of soft x-rays. A rotatable ConFlat flange with a high-vacuum seal design makes these cameras well-suited for UHV and x-ray applications, with sensitivity ranging from ~1 eV to ~30,000 eV. PIXIS-XO cameras are designed for worry-free operation in research and OEM environments.

This model is the PIXIS-XO 100 CCD, featuring a 1340 x 100 sensor format and large 20 μm pixels, optimized for sensitive x-ray spectroscopy research. The PIXIS-XO 100 offers ultra-low noise electronics, deep thermoelectric air cooling, an industry standard high vacuum compatible ConFlat vacuum interface, and ultimate flexibility with a dual-amplifier readout design.

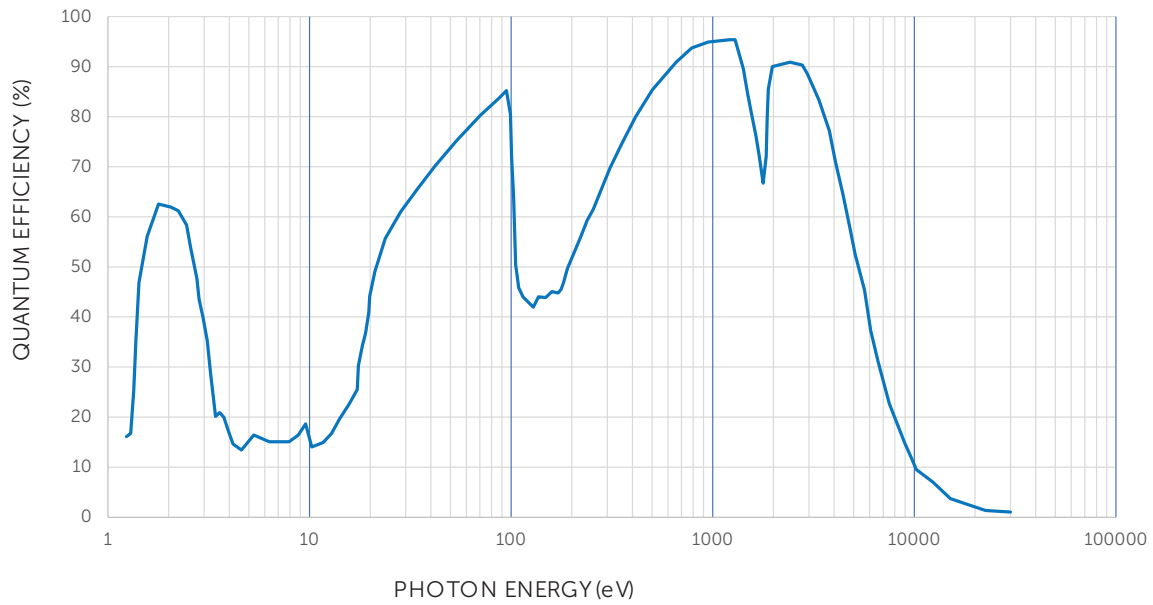


PIXIS-XO 100 SPECIFICATIONS

SPECIFICATIONS	Camera Performance
Sensor	Teledyne Princeton Instruments exclusive, Back-Illuminated, Grade 1, MPP, no AR
Active Array Size	1340 x 100 pixels
Pixel Area	13.3 μm x 2.0 μm (400 μm^2)
Sensor Area	13.3 mm x 2.0 mm (optically centered)
Spectral Response	~1 eV – ~30,000 eV
Full Well Capacity	250,000 e ⁻ (high sensitivity); 1,000,000e ⁻ (high capacity)
ADC Rates	2 MHz, 100 kHz
Analog Gain (typical)	1, 2, 4 e ⁻ /ADU (high sensitivity); 4, 8, 16 e ⁻ /ADU (high capacity) (available at all ADC rates)
Non-linearity	< 1.0% @ 100 kHz; < 2.0% @ 2 MHz
I/O Signals	Two MCX connectors for programmable frame readout, shutter, trigger in
Typical System Read Noise (RMS)	3.0 e ⁻ @ 100 kHz; 11.0 e ⁻ @ 2 MHz
Typical Dark Current	0.001 e ⁻ /p/s @ -75 °C
Cooling Options	Thermoelectric air or liquid cooling (optional CoolCUBE II coolant circulator available) -75 °C typical
Thermostating Precision	±0.05 °C across temperature range
Vertical Shift Times	< 15 μsec /row (programmable)
Output Interface	USB 2.0 (5m cable provided), optional fiberoptic interface available for remote operation
Digitization	16-bit
Operating Temperature Range	5°C to 30°C (non-condensing)
Bakeout Temperature	70 °C
Vacuum Compatibility	10 ⁻⁸ Torr
Camera Weight	8 lbs, 3.6 kg
Camera Dimensions	163 x 118 x 114 mm (L x W x H)
Certification	CE

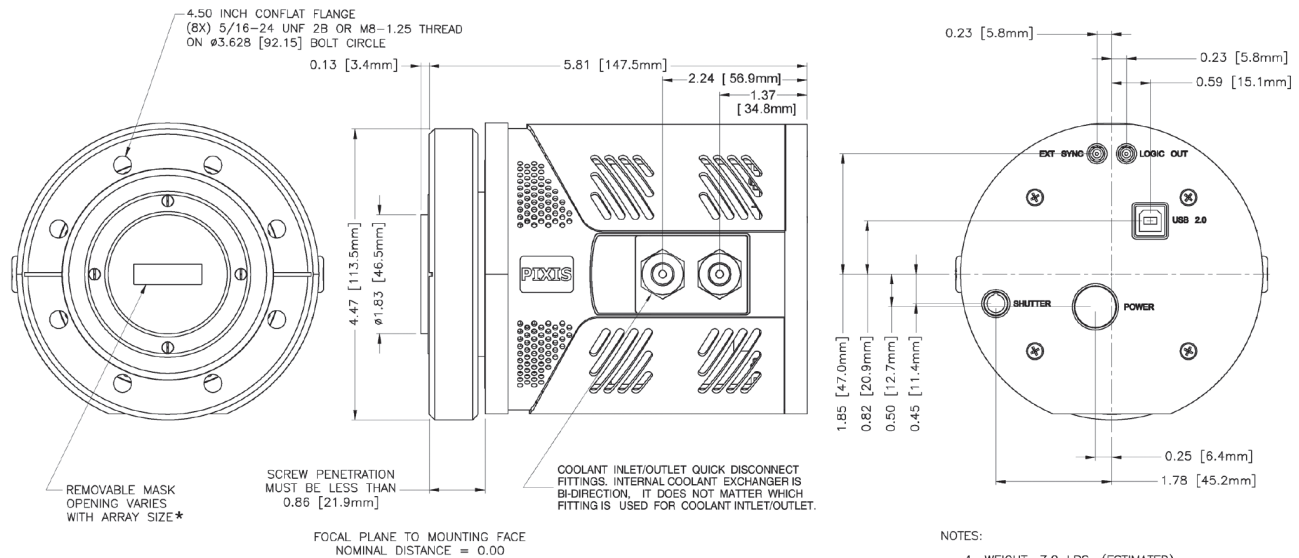
PIXIS-XO 100 SPECTRAL RATES

Specifications	PIXIS-XO 100
@100 kHz Full Vertical Bin	70 fps
@2 MHz Full Vertical Bin	750 fps
@2 MHz 0.4 mm high	1300 fps

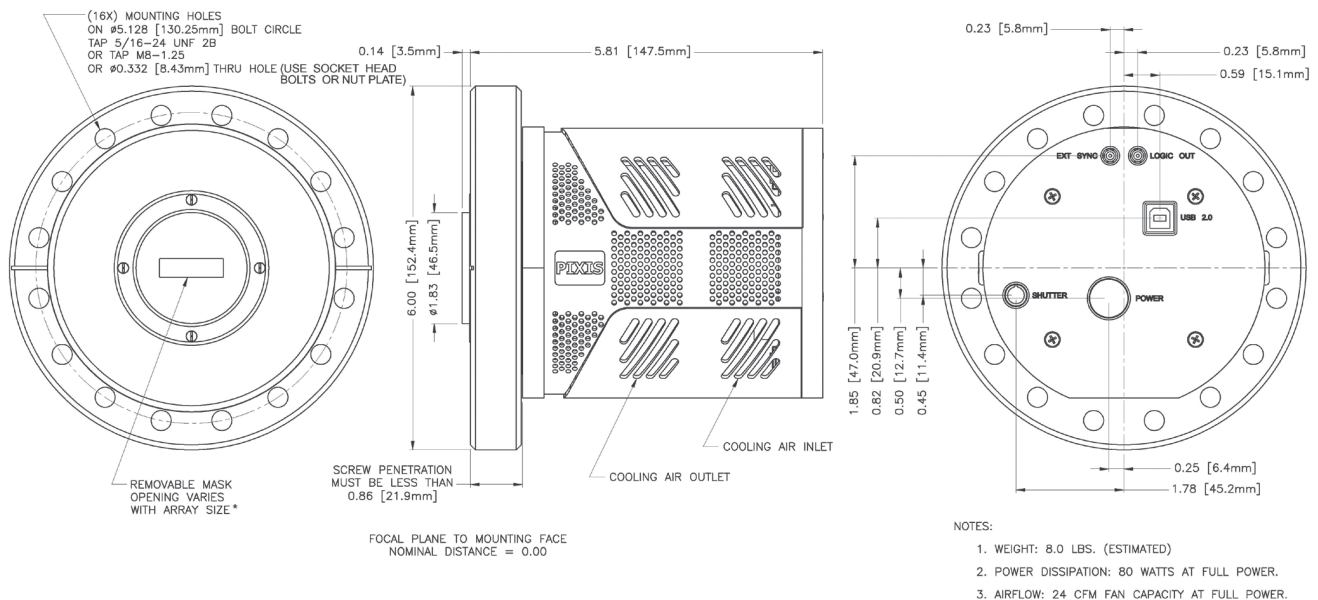
PIXIS-XO 100 QE CURVES

PIXIS-XO 100 ACCESSORIES

Accessories (Air Cooled)	Accessories (Liquid Cooled)	Accessories (Optional)
MCX to BNC cables (x2)	MCX to BNC cables (x2)	WinX application software
USB 2.0 interface cable	USB 2.0 interface cable	LightField® application software
Certificate of performance	Certificate of performance	SITK™ for LabVIEW
Power supply (120V/240V)/cables	Power supply (120V/240V)/cables	Fiber optic extender kit
	CoolCUBEII liquid circulator with hoses	

PIXIS-XO 100 DIMENSIONAL OUTLINES — 4.5" CONFLAT, AIR COOLING (UNITS: INCHES [MM])



PIXIS-XO 100 DIMENSIONAL OUTLINES — 6.5" CONFLAT, AIR COOLING (UNITS: INCHES [MM])



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Specifications in this datasheet are subject to change. Refer to the Teledyne Princeton Instruments website for most current specifications.

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